

**Amendments to the Claims:**

Please amend claims 4, 5, 9, 11, and 19; and add new claims 20-37 as follows.  
This listing of claims will replace all prior versions and listings of claims in the application:

**Listing of Claims:**

1. (original) A method for compiling data to enhance diagnosis of a myocardial infarction, the method comprising:
  - measuring multiple-lead electrocardiogram data of multiple patients;
  - sorting the measured data into groups, each group correlating measured data from one or more of the patients with ischemia in a heart region; and
  - storing the group correlations.
2. (original) The method of claim 1, wherein the measuring step further comprises:
  - acquiring electrocardiogram data from the patients with the multiple-lead electrocardiogram while the patients are experiencing temporary ischemia during percutaneous transluminal coronary angioplasty; and
  - identifying at least one location of the temporary ischemia on the heart of each patient.
3. (original) The method of claim 1, wherein the measuring step further comprises:
  - acquiring electrocardiogram data from the patients with the multiple-lead electrocardiogram while the patients are suspected to be experiencing ischemia;
  - confirming that the patients experienced ischemia; and
  - identifying at least one location of the ischemia on the heart of each patient.

4. (currently amended) The method of claim 3, wherein the ~~confirming and~~ mapping step[[s]] comprises conducting an angiogram procedure.

5. (Currently amended) The method of claim 2 or 3, wherein the at least one location is taken from a group consisting of an anteroseptal location, an inferior location, and a posterolateral location.

6. (original) The method of claim 1, wherein the measuring step includes measuring cardiac data using an electrocardiogram device having greater than 12 leads.

7. (original) The method of claim 6, wherein the measuring step includes measuring the cardiac data using an electrocardiogram device having 62 leads.

8. (original) A method for enhancing diagnosis of a myocardial infarction in a patient, the method comprising:

matching cardiac data acquired from the patient with stored cardiac ischemia correlation data, wherein the stored cardiac data is derived from multiple ischemia patients sorted into groups of patients based on locations on the ischemia patients' hearts where ischemia occurred; and

identifying at least one location of ischemia on the patient's heart, based on the stored cardiac data that matches the acquired cardiac data.

9. (currently amended) The method of claim 8, wherein the at least one location is taken from a group consisting of an anteroseptal location, an inferior location, and a posterolateral location.

10. (original) The method of claim 8, further comprising determining whether a myocardial infarction occurred in the patient.

11. (currently amended) The method of claim ~~[[8]]~~ 10 further comprising determining a size of the myocardial infarction.

12. (original) The method of claim 11, wherein determining a size of the myocardial infarction comprises:

defining a relationship between at least one electrocardiogram characteristic and a typical myocardial infarction size; and

comparing the acquired electrocardiogram data and the at least one electrocardiogram characteristic to determine whether the myocardial infarction has the typical myocardial infarction size.

13. (original) A method for enhancing diagnosis of a myocardial infarction in a heart of a patient, the method comprising:

acquiring cardiac data from the heart using a multiple-lead electrocardiogram device;

matching the cardiac data to stored cardiac data derived from at least one ischemia patient, wherein the location of ischemia on the ischemia patient's heart is known; and

displaying information regarding at least one location of ischemia on the patient's heart, based on the matching stored cardiac data for the ischemia patient.

14. (original) A system for using stored electrocardiogram data to enhance diagnosis of a myocardial infarction in the heart of a patient, the system comprising:

a data storage module for storing a correlation database derived from electrocardiogram data of multiple patients, the patients having either experienced a myocardial infarction or temporary cardiac ischemia during percutaneous transluminal coronary angioplasty and the data being sorted according to locations of ischemia on the hearts of the patients; and

computer software for enabling comparison of new electrocardiogram data to the stored electrocardiogram data to determine a location of ischemia in the heart of the patient.

15. (original) The system of claim 14, further comprising:

at least one disposable substrate for placement on the patient, the substrate including multiple electrocardiogram leads; and

at least one display module for displaying information about the patient's heart to a user.

16. (original) The system of claim 17, wherein the display module is configured to provide an integral map of the patient's heart and a three-dimensional image of the patient's heart which shows a location of ischemia.

17. (original) An apparatus for enhancing diagnosis of myocardial infarctions, the apparatus comprising a database derived from electrocardiogram data from multiple patients with cardiac ischemia in known locations on the heart, the database derived by sorting the electrocardiogram data into multiple groups based on the known locations.

18. (original) The apparatus of claim 17, further comprising angiogram or thallium scan data for each of the multiple patients.

19. (currently amended) The apparatus of claim 18, An apparatus for enhancing diagnosis of myocardial infarctions, the apparatus further comprising a disposable panel having multiple electrocardiogram leads, the panel configured for placement on or under a patient to acquire cardiac data from the patient.

20. (new) The apparatus of claim 19, further comprising computer software for enabling comparison of the patient's electrocardiogram data to the stored electrocardiogram data to determine a location of ischemia in the heart of the patient.

21. (new) The apparatus of claim 20, further comprising a display module for displaying information about the patient's heart to a user.

22. (new) The apparatus of claim 21, wherein the display module is configured to provide a map based on either ST elevation data or reciprocal ST depression data acquired from the electrocardiogram.

23. (new) The system of claim 21, wherein the display module is configured to provide information regarding the size of the ischemia.

24. (new) The system of claim 21, wherein the display module is configured to provide information regarding the identification of an occluded artery related to the ischemia.

25. (new) A method for diagnosis of a myocardial infarction of a patient, the method comprising:

measuring multiple-lead electrocardiogram data of multiple reference patients undergoing coronary angioplasty;

sorting the measured data into groups, each group having a correlation between measured data from one or more of the reference patients with a heart region having temporary, angioplasty-induced ischemia;

measuring multiple-lead electrocardiogram data from the patient; and  
identifying a location of the infarction using the correlations and the electrocardiogram data from the patient.

26. (new) The method of claim 25, wherein the location is taken from a group consisting of an anteroseptal location, an inferior location, and a posterolateral location.

27. (new) The method of claim 25, further comprising generating a map based on the electrocardiogram data of the patient.

28. (new) The method of claim 27, wherein generating a map comprises processing the ischemia region data and the electrocardiogram data to determine electrocardiogram characteristics that relate to the ischemia regions.

29. (new) The method of claim 28, wherein processing the ischemia region data and the electrocardiogram data comprises generating a map from an electrocardiogram characteristic comprising one of the following: ST elevation data; reciprocal ST depression data; QRS complex data; and QRST segment data.

30. (new) The method of claim 27, further comprising determining a magnitude of the ischemia.

31. (new) The method of claim 30, wherein determining the magnitude of the ischemia comprises determining a location of an occlusion within an artery related to the ischemia, wherein the location of the occlusion correlates to a portion of the heart effected by ischemia.

32. (new) The method of claim 31, wherein determining the location of the occlusion comprises differentiating between proximal occlusions, middle occlusions, and distal occlusions.

33. (new) A method for diagnosis of a myocardial infarction of a patient, the method comprising:

- acquiring multiple-lead electrocardiogram data of multiple patients while the patients are suspected to be experiencing ischemia;
- confirming that the patients experienced ischemia;
- sorting the acquired data into groups, the groups correlating measured data from one or more of the patients with ischemia in a heart region; and
- identifying a location of the infarction from the correlated group data.

34. (new) The method of claim 33, wherein the confirming step comprises conducting at least one of: an angiogram procedure; a cardiac marker analysis; a thallium scan; and an echocardiograph procedure.

35. (new) The method of claim 33, further comprising generating a map based on the acquired data by processing the confirmed ischemia data and the acquired data to determine electrocardiogram characteristics that relate to ischemia characteristics.

36. (new) The method of claim 35, wherein processing the confirmed ischemia data and the acquired data comprises generating a map from an electrocardiogram

characteristic comprising one of the following: ST elevation data; reciprocal ST depression data; QRS complex data; and QRST segment data.

37. (new) The method of claim 33, further comprising determining the magnitude of the infarction by determining the location of an occlusion within an artery related to the infarction, wherein the location of the occlusion correlates to a portion of the heart effected by the infarction.